



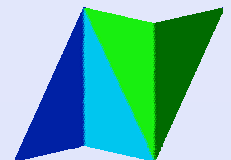
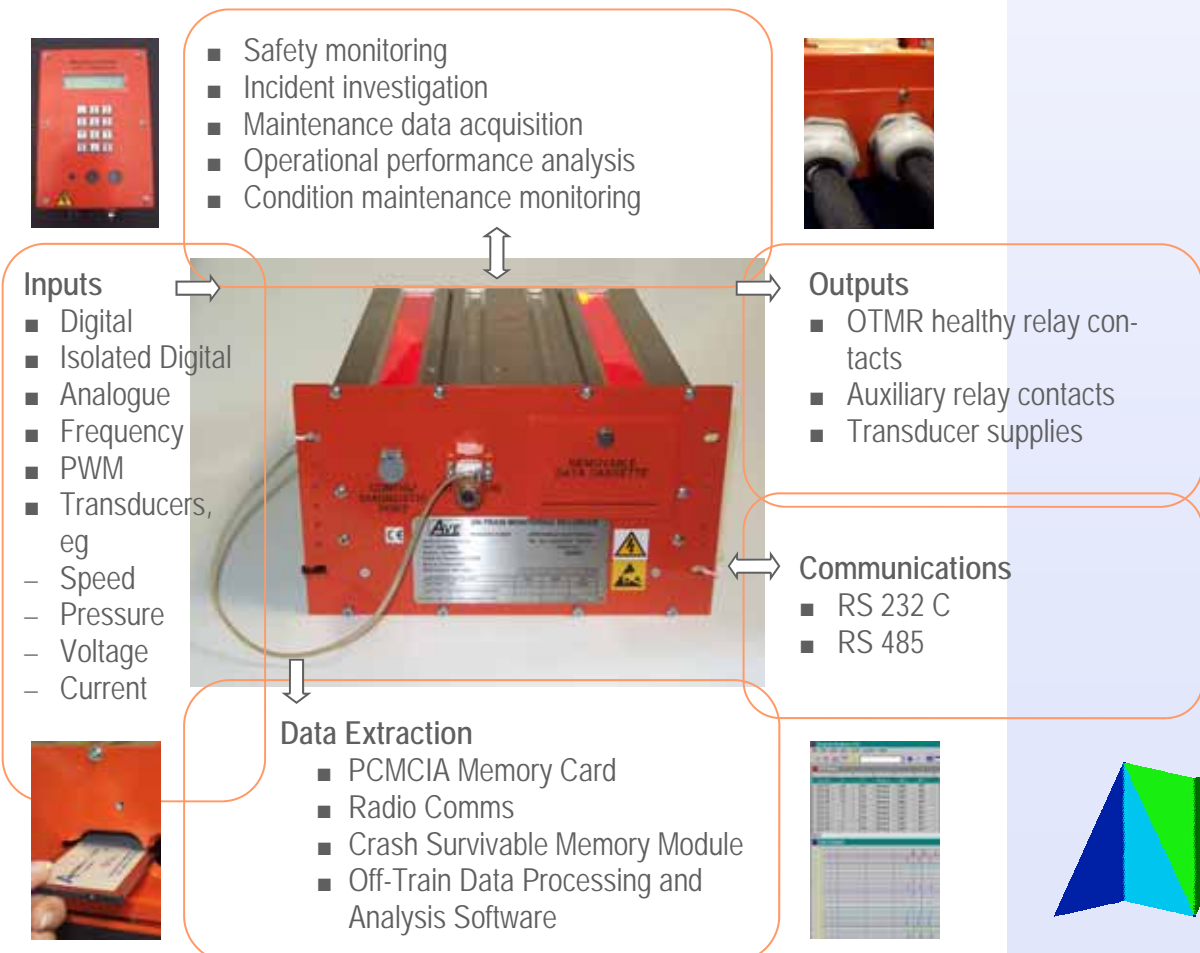
On Train Monitoring Recorder

The Arrowvale On Train Monitoring Recorder (OTMR) provides a complete record of each state change of all monitored signals. Data recording takes place to a secure non-volatile electronic memory with journeys of more than eight hours duration easily accommodated, and the capability to record in excess of three weeks.

Data is retained in a crash survivable memory module which has been designed from extensive research in the field of aircraft data recording systems. It employs proven techniques to provide protection of recorded train data during accident conditions, providing a secure data record for incident investigations.

Recorded data can be quickly and easily transferred to a PC or laptop for analysis, via a PCMCIA memory card.

The Arrowvale OTMR not only supports accident investigation but also meets the varied requirements of: systematic safety monitoring procedures; vehicle system performance analysis; driver training and the wider deployment of condition determined maintenance policies.



Features

- Crash Survivable Memory module with protection against impact, crush, fire and contamination
- Data compression techniques plus ample memory provide long recording periods, often several weeks in duration
- Train specific storage module (code plug) for saving key vehicle specific parameters
- Power-up and continuous built-in self test which activates the healthy/ faulty relay to drive external indicators
- Modular system allows up to 105 channels of data acquisition
- All channels can be programmed with user specific parameters such as active level, offset, gain, hysteresis etc.
- High speed signal detection — 20ms — ideal for AWS reset
- Accurate time-stamping of recorded data
- Special inputs for Speed, Analogue, PWM, Frequency signals
- Extensive communications facilities will connect to many standard Trainborne systems, including: ATP; TMS; COSMOS; PIS; TPWSE; MITRAC; TCU, as well as Arrowvale accessories like a Driver Interface Unit

- Comprehensive off-train analysis software (Analyser)
- Real time analysis software to allow the Arrowvale OTMR to perform like a permanently connected storage oscilloscope
- Data extraction by PCMCIA card
- Recorder outputs include alarm relays and supplies to drive sensors/ transducers
- Diagnostics port providing recorder configuration and on-train real time analysis
- Industrial grade components used throughout to provide high reliability and low maintenance

Options and Accessories

- Internal UPS to allow download and maintain system operation after power loss
- Auxiliary relay contact outputs to mimic inputs
- MMIs such as TagIT and Driver Interface Units
- GPS for accurate positioning and time stamps
- Remote download options via broadband radio comms or standard mobile network
- Connector kits, looms and termination boxes
- Secure mounting boxes
- Transducers and sensors
- PCMCIA memory download cards



Specification

Inputs

- Up to:

- 84 digital inputs (0V to V supply)
- 14 fully isolated digital inputs for critical signals such as Brakes / AWS
- 14 Analogue inputs (Current loop or Voltage)
- 14 Frequency inputs (Up to 270 KHz)
- 14 PWM inputs

Outputs

- Up to:

- OTMR healthy relay contacts
- Auxiliary relay contacts
- 7 Transducer supplies (eg. 12V @ 1W or 24V @ 3W)
- Internal operational indicators

Communications

- Up to:

- 7 serial interfaces configurable for RS232C or RS485
- RS232C interface for configuration and real time analysis

Data Storage

- Up to:

- 6 Mbytes Crash Survivable Memory

Notes:

Crash Survivable Memory can survive:

- Acceleration: 100g, 10ms, ½ sine wave
- Crushing force: 20kN
- Fire: temperatures up to 700°C for 5 mins
- Contamination: resistant to most common fluids

Weight

- 13 kg typical - depending upon configuration

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Electrical Supplies

- 24V DC nominal (16.8V to 40V)
- 110V DC nominal (67V to 121V) (Other models to order)
- Continuous operation during power outages is provided by an internal capacitor store or optional UPS.

Enclosure

- Rugged IP65 enclosure
- 19" rack mounted or bulkhead mounted
- Dimensions 300 x 250 x 176mm (75 I/P Version)

Temperature / Humidity

- -25°C to +55°C operating, -40°C to 60°C storage
- 20% to 95% RH (non-condensing)

Vibration

- Amplitude = 25/f mm for f = 1 to 10Hz
- Amplitude = 250/f² mm for f = 10 to 400Hz

Shock

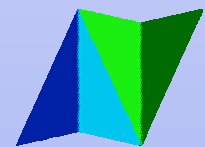
- 5g in all 3 axes

Electrical Insulation

- 1 kV rms. 50 Hz for 1 minute

Electrical Interference

- Complies with RIA Technical Specifications 12 and 18



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